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EVALUATION OF THE COSTS AND BENEFITS OF TRAINING
PUBLIC EMPLOYEES. A CASE HISTORY

North Central Texas Council of Governments

Prepared for:

Environmental Protection Agency

September 1973

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COSTS

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COSTS AND BENEFITS of
TRAINING
PUBLIC EMPLOYEES
— A CASE HISTORY**

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ENVIRONMENTAL PROTECTION AGENCY

AN EVALUATION OF THE COSTS AND
BENEFITS OF TRAINING PUBLIC EMPLOYEES

A Case History

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for the

Public Service Careers Section
Office of Education and Manpower Planning
Environmental Protection Agency
Washington, D. C. 20460

September 1973

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EPA REVIEW NOTICE

This report has been reviewed by the Environmental Protection Agency and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

ACKNOWLEDGMENTS

The Environmental Protection Agency wishes to acknowledge and thank the Texas State Department of Health, the Arizona State Department of Health, the City of Dallas, the Texas Employment Commission, the U. S. Department of Labor, and the North Central Texas Council of Governments for their major contributions and cooperation in making this publication possible.

The material in this document is representative of employment and training in only a few of the many facets of environmental control. Recognition should be given to the units of government, professional associations, and other agencies that are supporting training efforts in environmental control, in particular, and public employment, in general.

This evaluation of the effectiveness of employment and training should be most helpful in the continuing programs in fields such as water utility and solid waste disposal. It is expected, also, that with appropriate adaptations and interpretations the information and data will be useful in the greater variety of occupations prevailing in the operation of public units and organizations.

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FOREWARD

The North Central Texas Council of Governments was established in 1966 to reinforce and strengthen local governments in North Central Texas and to help them provide more effective, efficient and economical governmental services through inter-governmental cooperation and coordination. As revealed by surveys and questionnaires, North Central Texas is lacking in competent and qualified environmental health services personnel.

In an effort to meet environmental pollution control demands, NCTCOG water resources has been providing related training under the Public Services Careers program for the past three years. This document constitutes a full report of an investigation of the effectiveness of the employment and training organized and conducted by the NCTCOG.

The results of this study clearly indicate the effectiveness of PSC and the benefits to member units of local governments.

William J. Pitstick, Executive Director
North Central Texas Council of Governments

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SECTION I

P R E F A C E

This document presents the results of a study conducted for the Environmental Protection Agency by the North Central Texas Council of Governments. The study was authorized under Contract Number PC 4002 which involved employment, training, program development, materials preparation, and evaluation thereof. This is the outcome of the evaluation aspect of that public service careers contract.

The evaluation findings should be of significant interest to state and local area manpower planning committees and/or persons planning the use of state and local revenue sharing funds. The success demonstrated in providing job training to low-income and otherwise disadvantaged people has been a real payoff to the employees as well as to the public agencies that had need for trained environmental manpower.

Based on information and data accumulated over two and one-half years and formalized by means of an intensive investigation, this document contains at least five major kinds of presentations.

1. The outcomes of the program of employment and training conducted by the NCTCOG are described in Section II. The data are primarily focused on the individual worker-trainee. Reading of Section II makes apparent the benefits gained by individuals and by groups of workers. That, similarly, benefits accrue to the cities involved may be assumed. No attempt was made to obtain objective statistical information relating to how day-to-day operations were affected.
2. The public service careers training program conducted by the NCTCOG is described in Section III. Each of the components of that program is discussed at some length. Appropriate combinations of the components are indicated for both entry and upgrade levels of employment and training.
3. The dimensions of the cost of training are analyzed in Section IV by the manager of a Water Distribution Division, who is making a front-line attack on the controlling of such cost. In particular, his analysis reveals the solid and desirable effects that training has on retention of workers in jobs and, in turn, reduction of the costs of obtaining proficient workmen.
4. The conclusions and recommendations in Sections V and VI, respectively, are organized to clearly reflect how employment and training programs pertain to employer units, to trainees, and to communities. These are presented in two short sections so that major elements are most effectively revealed to the reader.
5. Section VII briefly explains the role of the North Central Texas Council of Governments. This is not meant to imply that the role itself was brief or limited. The evidence accumulated over 30 months indicates that organizations such as the NCTCOG are suitable agencies for conducting public service careers employment and training programs.

These five kinds of information relating to public manpower development have meaning and significance when considered separately. They take on even greater importance when related to each other, as the reader builds or extends his understanding of the value of such employment and training.

While this evaluation of the effectiveness of employment and training has been of much benefit to the individuals and groups involved with it, there is the expectation that it will be helpful to

others, as well. Efforts have been made, therefore, to emphasize what may be referred to as "the determinants of a successful public service careers program."

The investigation of this trainee oriented employment and training program is most sharply brought into focus by four major findings.

1. The measure of success in the six months of combined employment and training was completion of that formal program. In this respect, 95.6 percent of 270 enrollees succeeded.
2. The chief measure of success in the second phase of the program was retention of jobs for from 12 to 24 months after "graduation" from the six-months of initial employment and training. In this instance, 88.4 percent of the 258 graduates succeeded.
3. Another measure of success in the second phase of the program was advancement in jobs. In this program 258 of 270 people moved through the initial phase into continuing employment where advancement was possible. Success in this measurement aspect was achieved by the 84.5 percent of the graduates of job training who advanced in their careers by means of promotions in status.
4. An important measure of the success of the overall program of employment and training was increasing incomes of the individual workers. In this regard, almost all of the participants succeeded, with an average annual wage increase of \$1,000.

It is hoped that the reader will now proceed to "study" the entire investigative report.

SECTION II

OUTCOMES OF PSC EMPLOYMENT AND TRAINING IN NORTH CENTRAL TEXAS

Starting with the intent to evaluate, this investigation was organized and implemented first to isolate and define the results achieved in a particular program of public service careers employment and training. The investigation sought all available evidence on which to base evaluation of the PSC employment and training program conducted by the North Central Texas Council of Governments. The findings in this section provide insights relating to the determinants of successful preparation of unemployed and underemployed persons for PSC careers.

The Investigation

This investigation grew out of the continuing concerns of certain individuals and groups. Concern for effectiveness of the employment and training was evidenced by the Project Operation Committee, the Program Operation Advisory Committee, the monitors from the Environmental Protection Agency, and the Department of Labor, as well as the training program administrators, instructors, and counselors. Evaluation of the program started in rather informal ways and grew into this formal and systematized investigation.

It, of course, was important to those in charge of the North Central Texas Council of Governments to learn whether the program they were sponsoring, in fact, was fulfilling its intent and purpose. They wanted to know the extent to which the employment and training was "measuring up" to appropriate standards.

Sources of Information

The primary information and data pertaining to the employment and training were drawn from files maintained on the worker-trainees.

1. Files maintained in the offices of the North Central Texas Council of Governments.
 - a. MA-104 Form.
 - b. MA-101 Form.
 - c. Anecdotal and other materials.
2. Files maintained in the office of the subcontractor for training, Skills Development, Inc.
 - a. Trainee instructional progress reports.
 - b. Counselors' forms and check sheets.
 - c. Records of support services rendered.
 - d. Individualized anecdotal and other materials.
3. Files maintained in offices of cities that employed the public service workers.
 - a. Job application forms.
 - b. Employment status changes and terminations.

These sources provided information and data relative to 270 people. The data was uniform and could be readily categorized and tabulated, even though the employment and training was accomplished in 20 different cities in North Central Texas.

Limitations

There were three limitations to this investigation that were almost immediately apparent:

1. Sample (population) was drawn from only one PSC program.
2. Information and data were accumulated to some extent "after the fact". The decision to do a formal evaluation was not made prior to putting the program into effect.
3. The data available from cities was that which they ordinarily maintain for purposes other than training. Certain additional data would have been helpful in portions of the study.

It should be noted that cities that do not keep complete hiring and terminating data on employees are hardput when asked to develop cost-benefit figures relative to manpower training and development.

Population

The primary population for this study consisted of 270 persons drawn from 20 cities to participate in the Public Service Careers Program conducted by the North Central Texas Council of Governments. This is the group of people hired and trained in the time frame, November, 1970 through June, 1972. At the time of this writing, September, 1973, a total of 608 people have been or are now being trained in the program.

Two categories of people were in the population with which evaluation of the employment and training program was directly concerned. The Entry trainees were 125 men certified as disadvantaged by the Texas Employment Commission. They were hired by various departments in the 20 cities and recommended for PSC training. It became the goal of the training program to train these men in ways designed to help them keep their jobs alongside other men hired to do the same or similar work.

The Upgrade trainees were 145 persons; 7 women and 138 men. They were permanent employees of various city departments who were recommended for the upgrade PSC training. It became the goal of the training program to train these men and women in ways designed to upgrade their capabilities so that advancements in jobs might be achieved.

The cities from which the population was drawn are indicated in Table I. The 125 Entry trainees were from 18 of the 20 cities. The 145 Upgrade trainees came from 11 of the cities. It is apparent that the greatest participation was in Dallas, the City from which 174 trainees, or 64.4 percent of the population, were drawn.

TABLE I
CITIES PARTICIPATING IN PSC EMPLOYMENT AND TRAINING

City	Entry	Upgrade	Totals
Alvarado	1	0	1
Arlington	2	4	6
Commerce	2	1	3
Dallas	72	102	174
Dawson	2	0	2
Denton	4	7	11
Farmers Branch	1	7	8
Forreston	1	0	1
Fort Worth	6	9	15
Garland	8	7	15
Grand Prairie	0	2	2
Grapevine	1	0	1
Greenville	10	1	11
Haslet	0	1	1
Lewisville	1	0	1
McKinney	8	0	8
Plano	1	0	1
Seagoville	2	0	2
Springtown	1	0	1
Terrell	2	4	6
Totals	125	145	270

Methodology

The development and conduct of this investigation of the effectiveness of employment and training were structured by an Evaluation Committee. The members of that committee are indicated on the next page. The Director of the overall PSC Project, and the Chairman of the Evaluation Committee, was Marvin Garza, North Central Texas Council of Governments.

Members of the Committee conferred frequently by telephone and in person as the evaluation progressed and as this document was prepared. Much time was devoted to formulation of the basic design and to establishment of the procedures to be followed. Members of the Committee edited the written materials as they took shape in pieces and parts of sections.

The accumulation and fundamental analysis of information and data were done by a Consultant Data Analyst and her Statistical Assistant. Computer techniques and key-punch equipment were used in compiling the data. Verification of data and final editing of the interpretations was done under the direction of Dr. William Frawley, Manager of the Statistical Research Laboratory, Southern Methodist University.

Accumulation of the data involved meticulous searching for the facts accumulated on each trainee. Where items were missing in the paper records, telephone calls had to be made to ferret out the information. This was often time-consuming and required excellent telephone "public relations". A total of 16,442 separate data items were punched into IBM cards and tabulated. Many of these items had to be documented from more than one source to insure accuracy. This aspect of the investigation required approximately 90 days of intensive and continuous work.

The basic writing of this document was done by the professional staff and consultants associated with the North Central Texas Council of Governments. It was, of course, Mr. Jim Reames who wrote Section IV of this document. In that section he outlines the way in which he developed it with the assistance of certain of his fellow workers.

EVALUATION COMMITTEE

Employment and Training Project

North Central Texas Council of Governments

Chairman: Marvin Garza
Training Project Director
North Central Texas Council of Governments

Mrs. Dottie Himes
Manpower Development Specialist
Environmental Protection Agency

Mrs. Velma R. Dunn
Vice President
Skills Development, Inc.

J. P. Reames
Manager of Water Distribution
City of Dallas

James D. Goff
Assistant Commissioner
Environmental Health Services
Arizona State Department of Health

Frank A. Supak
Selection and Referral Officer
Arlington-Grand Prairie Office
Texas Employment Commission

Jerome R. Pikulinski
Director of Manpower Planning
North Central Texas Council of Governments

Arthur Vondrick
Director of Water and Sewers Department
City of Phoenix, Arizona

Biographical Information

This biographical information is intended to establish a perspective from which to study the impact of the employment and training program. The information, however, is not essential to an accurate interpretation or understanding of the impact data.

Entry Trainees

The 125 Entry trainees represented families having income the previous year that was below the poverty line. Other observable factors that characterized these Entry trainees as disadvantaged were:

1. Instability of employment.
2. Under utilization of human resources.
3. Poor or marginal housing; space and sanitation.
4. Inadequate general education and job preparation.
5. Limited motivations and attitudes of hopelessness.

These are, of course, the same factors that have long been associated with low job productivity. These are the factors that contribute to the development of personal, family, training, and job problems.

The biographical information and data presented in this and following paragraphs were obtained as the 125 Entry trainees were enrolled in the PSC program. All of the trainees were men. In chronological age, the men ranged from 17 to 67 years. The most frequent ages were 20, 21, and 22 years; for 35, or 28.0 percent, of the group. The average age of the 125 men was 27.6 years. There were 91 of the 125 men aged 17 through 28 years. This was 72.8 percent of the group. Youthfulness, therefore, was a prominent characteristic of this Entry group. See Table II for the summary of data relative to chronological ages of the 125 men in entry training, as well as the 145 persons in upgrade training.

One hundred nine of the men, 87.2 percent, were white. Fourteen black men made up 11.2 percent of the group, the remaining two trainees, 1.6 percent, were of Mexican-American origin.

Seventy-eight, or 62.4 percent, of the Entry trainees were married at the time they enrolled. The thirteen men who were divorced or otherwise separated from wives constituted 10.4 percent. Thirty-four of the 125 men, or 27.2 percent, were not and never had been married.

Thirty-six, or 28.8 percent, of the men had no people dependent upon them for support. The families headed by the remaining 89, or 71.2 percent, of the men ranged from two to eight persons. Thirty-two men, or 25.6 percent, were providing for one dependent each. There were 57 men, or 45.6 percent of the total group, who had from two to seven persons in addition to themselves to support. The average family including husband consisted of 3.5 persons.

The majority of the 125 men, 78 or 62.4 percent, had no military experience in their background. Twenty-one men, or 16.8 percent, had military experience prior to August of 1964. Twenty-six men, or 20.8 percent, served during the Vietnam Era.

The previous educational exposure of a trainee was represented by the highest grade level he

attained in a public or private school, prior to entering the PSC program. The levels of education ranged from fourth grade for one person to grade 13 (one year of college) for another person. Forty one of the Entry trainees, or 32.8 percent, were high school graduates. In contrast, 23, or 18.4 percent, of the trainees had eight or fewer years of educational exposure. All of the data in this regard are shown in Table III. It is perhaps most significant to note that the average grade level attained by the 125 men in the Entry training group was 10.17. Among the three groups of men, enrolled at different times, the average grade level attained varied only 0.12 years. Entry trainees: Group I, 10.17 grades; II, 10.09 grades; and III, 10.21 grades. In this respect, certainly, the character of the entry trainees was consistent.

The composite or "average" PSC Entry trainee was a white male, 27.6 years old, married with a family of 3.5 persons, not having served in any military organization, and having completed 10.17 years in school.

TABLE II
CHRONOLOGICAL AGE OF PSC PARTICIPANTS

Category	17-21	22-26	27-31	32-36	37-41	42-46	47-51	52-67	Totals
Entry:									
Group I	8	11	2	1	1	1	0	0	24
Group II	16	6	5	1	2	1	1	1	33
Group III	20	22	8	3	3	3	3	6	68
Totals	44	39	15	5	6	5	4	7	125
Percent of 125	35.2	31.2	12.0	4.0	4.8	4.0	3.2	5.6	100.0
Upgrade:									
Group I	1	5	5	2	2	6	5	4	30
Group II	4	6	3	5	3	5	1	6	33
Group III	19	14	10	8	12	5	7	7	82
Totals	24	25	18	15	17	16	13	17	145
Percent of 145	16.6	17.3	12.4	10.3	11.7	11.0	9.0	11.7	100.0

TABLE III
EDUCATIONAL GRADE LEVELS OF PSC ENROLLEES

Category	Grade Level											Totals
	3	4	5	6	7	8	9	10	11	12	13& up	
Entry:												
Group I	0	0	1	1	0	4	1	4	4	9	0	24
Group II	0	0	0	1	3	2	6	4	8	9	0	33
Group III	0	1	1	2	2	5	8	16	10	22	1	68
Totals	0	1	2	4	5	11	15	24	22	40	1	125
Percent of 125	0.0	0.8	1.6	3.2	4.0	8.8	12.0	19.2	17.6	32.0	0.8	100.0
Upgrade:												
Group I	0	2	0	5	2	6	2	3	2	3	5	30
Group II	1	0	1	0	2	10	3	1	7	8	0	33
Group III	0	0	6	3	8	10	14	17	7	15	2	82
Totals	1	2	7	8	12	26	19	21	16	26	7	145
Percent of 145	0.7	1.4	4.8	5.5	8.3	17.9	13.1	14.5	11.1	17.9	4.8	100.0

Upgrade Trainees

The Upgrade trainees with which this report is concerned, were people who prior to their participation in the PSC program were unable to advance in the work force. The intent was to enhance their career growth opportunities by means of on-the-job training, job-related education, counseling, and supervisory training.

The intake biographical information and data on the 7 women and 138 men who were upgrade training enrollees was not strikingly different from that pertaining to the Entry trainees. The upgrade persons were, of course, somewhat older, had less formal schooling, and as permanent employees of the cities had more income in the previous year(s).

The 7 women were employed in general service jobs in the Water Department of the City of Fort Worth. They were in the PSC training program with expectations of advancements in their job responsibilities and with hopes of promotions. The average age of these women was 30.1 years. Their ages ranged from 22 to 50. Five of the women were married when they entered the PSC program, 1 was divorced, and 1 was single. Six of these women were white, 1 was black. The grade level of previous education attained ranged from 9 through 15 (three years of college). The average grade level was 12.7. Only 1 of the 7 women did not have a high school diploma.

The data pertaining to the 7 female upgrade trainees have been indicated. The data that follow, however, are for the total of 145 people in the Upgrade Group. The combined figures relative to both the men and the women are more representative of the Upgrade trainee.

The 145 men and women in upgrade training ranged in chronological age from 17 to 60 years. The most frequent age was 20, with 10 persons. At most of the ages 17 through 60, with the exception of 20, the numbers of people were 2, 3, and 4. Sixty-seven people, or 46.2 percent, were 31 years or younger. The average age of the 145 persons was 34.7 years, just 7.1 years higher than the average for the 125 men in the Entry Group. The data on ages of the Upgrade trainees are summarized in Table II.

One hundred twenty-one of the Upgrade trainees, or 83.4 percent, were white. Twenty of the trainees, or 13.8 percent, were black. The remaining four trainees, or 2.8 percent, were of Mexican-American origin.

One hundred eighteen, or 81.4 percent, of the Upgrade trainees were married when they enrolled in the PSC program. Twenty people, or 13.8 percent, were not and never had been married. Only seven persons, or 4.8 percent of the group, were divorced or otherwise separated from spouses.

Twenty-four, or 16.6 percent, of the Upgrade trainees had no people dependent upon them for support. The families headed by the remaining 121 persons, or 83.4 percent, ranged from two to eight persons. Twenty-seven persons, or 18.6 percent, were providing for one dependent each. There were 94 persons, or 64.8 percent of the total group, who had from two to seven people in addition to themselves to support. Approximately one-fourth of the families of the Upgrade trainees consisted of the trainee and two dependents. The average family size including the PSC wage earner, was of 3.8 persons.

One of the seven women in the Upgrade group of trainees had military experience prior to entering the PSC program. The experience was acquired after August 8, 1964. Almost two-thirds of the 138 men in the group had no military experience in their backgrounds. Eighty-six, or 62.3 percent, had no military service. Thirty-six, or 26.1 percent, of the men were in military organizations prior to August 8, 1964. Sixteen men, or 11.6 percent, served during the Vietnam Era.

The previous education exposure of the Upgrade trainees ranged from the third grade for one person to grade 15 (three years of college) for another person. Twenty-six of the Upgrade trainees were high school graduates; 7 had some education at the college level. These 33 trainees represented 22.8 percent of the total group. In contrast, 56, or 38.6 percent, of the Upgrade trainees had eight or fewer years of educational exposure. All of the data in this regard are shown in Table III. It is perhaps most significant to note that the average grade level attained by the 145 people in upgrade training was 9.32. Among the three groups of Upgrade trainees enrolled at different times, the average grade level attained varied only 0.28 years. Upgrade trainees: Group I, 9.17 grades; II, 9.45; and III, 9.32. In this respect, the character of the Upgrade trainees was relatively consistent.

The composite or "average" PSC Upgrade trainee was a white male, 34.7 years old, married with a family of 3.8 persons, not having served in any military organization, and having completed 9.32 years in school.

Impact of Employment and Training

The PSC program embraced the philosophy of "hire first, train later." The program involved the kinds of manpower development that are based on the combined effects of hiring for specific jobs and training directly for those jobs. There were two major categories of activity in the program: (1) employment and training of new hires (entry) and (2) continued employment and training of existing employees (upgrade). Conducting of the program has demonstrated that the circumstances of employment motivated individuals in their efforts to learn their jobs. Similarly, there is evidence that the circumstances of training motivated individuals in the performance of their jobs. These statements are equally applicable to both the entry and upgrade personnel.

The Public Service Careers employment and training program, with which this report is concerned, is fully described in a later section. To establish the perspective here, the employment and training components are concisely stated, substantially in sequence.

1. Employment and recommendation for training.
 - a. Entry people were new hires from the unemployed or underemployed ranks of labor; hired with the intent that they immediately enroll for training.
 - b. Upgrade people were established employees who needed training to achieve upward mobility in jobs; they were recommended by their supervisors.
2. Orientation to the employment and training program.
 - a. Entry people received 40 hours of orientation in one week.
 - b. Upgrade people received 24 hours of orientation over three days during one week. Primarily, this was to motivate them to want the training for which they were recommended.
3. Entry trainees were provided with support services: medical, dental, and transportation assistance.
4. Both entry and upgrade trainees were subjected to individual and group instruction.
 - a. Remedial, basic, and general education.
 - b. Job related training.
 - c. Specific job skill preparatory training.

5. Both entry and upgrade trainees were given special counseling and job coaching.
6. Both entry and upgrade trainees were supervised in job activities at their worksites.
7. The six-month program of employment and training culminated in graduation exercises with certificates of completion and other awards.

These components of employment and training were built into a schedule that permitted the 270 entry and upgrade trainees to complete the program between November 30, 1970 and June 30, 1972.

The PSC program got underway in December of 1970 with the orientation of the 24 entry and 30 upgrade trainees designated as Entry Group I and Upgrade Group I. Classroom instruction was started on January 4, 1971. The trainees were in class for one 8 hour day each week and were at their jobs the other four days of each week. The class instruction for Group I ended in May, 1971. The graduation exercises for this Group were held on June 18, 1971. While the entry trainees were getting 40 hours of orientation and 160 hours of classroom instruction, they were also gaining 640 hours of supervised work experience that was correlated with the instruction. Similarly, the upgrade trainees received 24 hours of orientation, 176 hours of classroom instruction, and 640 hours of supervised work experience. This was truly an employment AND training program.

In similar ways, in time frames of approximately six months each, Group II, with 33 entry and 33 upgrade trainees, and Group III, with 68 entry and 8 upgrade trainees, moved through their basic patterns of employment and training. The employment of these persons was continued after the training aspects of the program were completed. Thus, there are two periods of time of significance in the discussions that follow. First, there was the six months in which employment and training were combined. Then, there was the time to the cut-off date of this investigation, May, 1973, during which the people continued in employment or were terminated for various reasons.

The impact of both employment and training under this PSC program is demonstrated in the material that follows. The material is sub-divided in terms of the entry and upgrade categories of trainees.

Employment and Training Results Achieved by Entry Personnel

The 125 entry, new hire employees, were hired to work in 18 different cities with somewhat different employment circumstances. The cities were not uniform in their use of job titles and categories of work. The employment was, however, restricted to five departmental or divisional fields of municipal employment; (1) water distribution and plant operation, (2) wastewater collection and treatment plant operation, (3) solid waste disposal, and (4) parks and recreation, and (5) street maintenance. The numbers of entry employees in the respective fields are shown in Table IV. The jobs within the five fields, among the 18 cities, were in most instances similar and the employment and training circumstances were relatively uniform.

TABLE IV
OCCUPATIONAL FIELDS OF PSC EMPLOYMENT AND TRAINING

Category	Water	Waste- water	Solid Waste	Parks and Recreation	Street Mainte- nance	Totals
Entry:						
Group I	24	0	0	0	0	24
Group II	27	6	0	0	0	33
Group III	30	15	12	7	4	68
Totals	81	21	12	7	4	125
Percent of 125	64.8	16.8	9.6	5.6	3.2	100.0
Upgrade:						
Group I	30	0	0	0	0	30
Group II	25	7	0	1	0	33
Group III	43	7	24	1	7	82
Totals	98	14	24	2	7	145
Percent of 145	67.6	9.7	16.6	1.3	4.8	100.0

The data in Table IV show that 64.8 percent of the entry people were employed and trained in the field of water distribution and plant operation. The majority of these people were employed in the Water Distribution Division of the City of Dallas. The PSC program was initiated and administered by the Water Resources Division of the North Central Texas Council of Governments. This accounts for the emphasis on water and wastewater in the total program. Incentives to move into the fields of solid waste disposal, parks and recreation, and street maintenance developed as the trainees in Group III were brought into the program.

There were sixteen job classifications for which entry people were employed and trained in this program. These are indicated in the listing here:

Water Distribution and Plant Operation

Pipe Fitter Helper
Maintenance Man
Laborer

Water Meter Repairman
Automotive Equipment Operator
Water Plant Operator

Wastewater Collection and Plant Operation

Maintenance Mechanic
Wastewater Treatment Plant Operator

Wastewater Treatment Plant Attendant
Laborer

Solid Waste Disposal

Automotive Equipment Operator
Garbage Collector II

Garbage Collector I
Automotive Equipment Maintenance Man

Parks and Recreation

Grounds Keeper

Street Maintenance

Laborer

More entry people were employed and trained to be pipe fitter helpers than were prepared for any other job. This, again, because the early emphasis in the program was with water distribution workers, pipe fitting being the primary occupation in that field.

Results Achieved by Entry Workers During the Six Months Employment and Training Period -- The most important result to be achieved by an individual during the six months of initial employment and training was completion of the program. Completion meant that the individual met the requirements of the work situation and that he achieved satisfactorily in the training situation. Inadequate job performance and/or achievement in learning could have resulted in termination of the individual from the program.

One hundred twenty of the 125 entry people completed the six-months program in which employment and training were combined. This is a completion rate of 96.0 percent. The completion pattern was relatively consistent for the three groups of entry people.

	<u>Number Enrolled</u>	<u>Number Completed</u>	<u>Percent</u>
Group I	24	23	95.8
Group II	33	30	90.9
Group III	68	67	98.5

Few, if any, of the elements that influenced this relatively high level of completion could be isolated or measured accurately. It appears that "friendly persuasion" exerted by work supervisors, training instructors, and counselors was the most important motivating factor. From orientation in the first week to graduation at the end of six months, the relationships between the worker-trainees and the employment and training staff were good. In only a few instances did this relationship break down with individuals.

The completion record achieved appears even stronger when one examines the information relative to the five men who did not complete the six-months program. Three of these men moved to other areas of the country for what they considered to be better jobs. Only two men, 1.6 percent of the 125 entry people, quit their jobs and the training because they were not succeeding in the program.

Another result achieved during the six months of combined employment and training is represented in the passing of the General Educational Development examinations leading to the high school equivalency certificate. When the 125 men in entry training were enrolled, there were 41 who held high school diplomas attesting to their 12 years of educational exposure. Eighty-four of the men had been in school for 11 or fewer years. These data are summarized in Table III. As a result of this employment and training program, 35 men, or 41.7 percent of the 84, passed the GED and were awarded high school equivalency certificates. An additional 13 men, 15.5 percent, upgraded their education by passing parts of the GED. It is known that seven of these men have since retaken the parts missed and now hold the certificate. A total of 48 men, or 57.1 percent of the 84, experienced either complete or partial success in regard to General Educational Development. This is revealed in Table V.

Of much significance is the data relative to the grade levels from which men moved to achievement of high school equivalency. Table V indicates that two men moved from each of grades 6, 7, and 8 to grade 12 by means of the GED process. Grades 9 through 11 were the grades from which men moved in greatest numbers to the grade 12 level. There were 29 men in those three grades who

TABLE V
ATTAINMENT OF HIGH SCHOOL EQUIVALENCY BY PSC TRAINEES

Category	Grade Level From Which GED Was Passed						Partial Pass	Totals
	6	7	8	9	10	11		
Entry:								
Group I	0	0	1	1	2	2	0	6
Group II	1	2	0	4	2	7	5	21
Group III	1	0	1	1	6	4	8	21
Totals	2	2	2	6	10	13	13	48
Upgrade:								
Group I	2	2	5	2	3	2	2	18
Group II	0	0	4	3	1	3	6	17
Group III	0	4	3	7	7	4	21	46
Totals	2	6	12	12	11	9	29	81

achieved the high school equivalency certificates. As noted in the biographical data portion of this Section, the entry men were enrolled with an average grade level of 10.17. After the GED results were in, the average grade level of the 125 entry people was 10.82. The average grade level of the trainees was increased by 0.65, or approximately two-thirds of one grade. This is a substantial achievement, since General Educational Development was only one of several parts of the 200 hours of orientation and classroom instruction provided in the program.

A third major result of the employment and training in this PSC program was earning of the mandatory certificates of competency in water and wastewater plant operation. These certificates were awarded by the Texas Health Department. A total of 16 certificates were earned with three men earning two each. Of the three, one man earned a "B" certificate in water and a "C" in wastewater. Each of the other two men earned a "C" certificate in water and another "C" in wastewater. The 16 certificates were distributed as follows:

"B" in water plant operation*	1
"C" in water plant operation	7
"D" in water plant operation	5
"C" in wastewater plant operation	3
Total	16

Since three men doubled up in earning certificates the total number of men earning them was 13. Of the 125 entry people, 102 were employed in the fields of water and wastewater. The remainder were in solid waste, parks and recreation, and street maintenance. Therefore, the 13 men who earned certificates represented 12.7 percent of the 102 employed in the water and wastewater fields. This is a respectable number again, since the amount of training aimed directly at preparation for the Health Department tests was restricted to not more than 40 hours.

One day, eight hours, of the training program was used to teach first aid. This was done by a certified instructor using the multi-media approach and materials provided by the American Red Cross. Seventy-three, or 58.4 percent, of the 125 entry people passed the test over the first aid unit and were issued Certificates of Achievement by the American Red Cross. The first aid training came early in the training sequence, before some of the trainees had a chance to build up their reading skills. To satisfactorily test them over the first aid unit, oral examining techniques were used. The results were particularly satisfying and motivating to the trainees who were not in this case restricted to achievement because of inadequate reading abilities. For all of the trainees, the first aid instruction and testing was a substantial first step toward full appreciation of good health and safety practices as essential aspects of employment.

The rendering of support services in this PSC program was a motivational element that resulted in improved health and general morale. The philosophy was that of "services only as needed" and help was provided each entry trainee as his need for that help became evident. The services for entry trainees included medical treatment, dental examination and treatment, and transportation assistance. All employees of the cities were required to have general medical physical examinations prior to employment, at no cost to them.

The support services contributed to the holding power of the program and to the high rate of completion of it. A man who got his teeth "fixed" for the first time in his life developed a loyalty to his employer and the training unit. Similarly, the man who obtained a pair of glasses or a denture was motivated to stay with the program. At no time and with no particularly trainee were support services allowed to become a crutch on which the trainee might come to depend.

*"A" is the highest such certificate, "D" the lowest.

Medical services involving eye examinations, glasses were needed, prescription medicines, and other items were provided for many trainees. All trainees were expected to have dental examinations. Some of the 125 entry trainees were "afraid" to go into the dentist's chair. They could not be persuaded to have the examination. Other trainees, however, made frequent trips to the dentist's office when they had need for fillings, having teeth pulled, and so forth.

Transportation was an important support service available to all entry trainees. In particular, transportation assistance was needed for entry trainees to get to the central location for orientation sessions. Some trainees drove cars for considerable distances and the cost would have prohibited them from participating had reimbursement of some of that cost not been available. Similarly, transportation assistance was paid to some trainees who had to drive from their worksites to the various class locations. For the most part, cash was paid to some of the trainees who formed car pools and brought their fellow workers to the orientation and class sessions. The effect was that every entry trainee received transportation assistance either in a cash payment or in "kind".

To summarize the support services aspect of the program, all of the 125 men in the entry category of employment and training were subjected to a general medical examination. Seventy-eight, or 62.4 percent, of them were subjected to dental examinations and approximately one-third of them returned to the dentist for correctional treatment. All of the men benefited from transportation assistance as cash payments were made to approximately one-third of them so that car pool arrangements were made effective for others. Much transportation was also provided by means of a mini-bus, a station wagon, and several cars driven by members of the staff of the counseling and training unit.

Results Achieved by Entry Workers In Continuing Employment – Each PSC worker-trainee was initially enrolled in the six-months combined employment and training program. When he "graduated", he was continued in employment as a member of the regular work force of the particular city. There were, as time passed, terminations for various reasons, as with other regular employees.

Continuation in employment with increases in wages represented success for the entry personnel who completed the employment and training phase of the program. Continuation with better pay demonstrated the positive viewpoint of the employing agencies toward the job performance of the entry people. There were 120 persons who graduated as entry personnel. Increases in wages for these people ranged from \$0.00 to \$1.45 an hour. Of the 120 persons, 102 actually received wage increases that averaged \$0.49 an hour. The wage figures are shown in Table VI.

TABLE VI
AVERAGE WAGES EARNED BY PSC PERSONNEL

Category	Average Wages		Increase In Wages	Time Span In Months
	Enrollment Date	May 1973		
Entry:				
Group I	\$1.99 (24) *	\$2.63 (23)	\$0.64	30
Group II	2.13 (33)	2.85 (30)	0.72	24
Group III	2.23 (68)	2.55 (67)	0.32	18
Averages for Overall Entry	\$2.15 (125)	\$2.64 (120)	\$0.49	---
Upgrade:				
Group I	\$3.16 (30)	\$3.76 (29)	\$0.60	30
Group II	3.14 (33)	3.72 (28)	0.58	24
Group III	2.99 (82)	3.40 (81)	0.41	18
Averages for Overall Upgrade	\$3.05 (145)	\$3.55 (138)	\$0.50	---

*The number in parenthesis under Enrollment Date is the number of participants; under May, 1973 it is the number of persons who completed the employment and training phase and continued on in employment.

The time span for Entry Group I was 30 months from enrollment in December, 1970 to when data were accumulated in May, 1973. The average wage of the 24 men in the group at their enrollment was \$1.99 an hour. The wages recorded in May, 1973 were averaged to show increases. The average of these figures for the 23 graduates of the Entry Group I continuing in employment was \$2.63 an hour, an increase of \$0.64 over the beginning average.

Similarly, with Entry Group II the wage figures were averaged to show increases. With a time span of 24 months, the 33 who enrolled for employment and training had an average wage of \$2.13 an hour. The wages recorded in May, 1973 for the 30 graduates in Entry Group II averaged \$2.85 an hour, for an increase of \$0.72 an hour. Even though the time span for Group II was six months less than for Group I, that group averaged \$0.08 an hour better. For this there is no apparent explanation.

The enrollees in Group III began with a higher average wage of \$2.23 an hour. With a total time span of 18 months, their recorded wages in May, 1973 averaged \$2.55 an hour for an increase of \$0.32. To summarize, the average wage increase for Group I was \$0.64, Group II was \$0.72, Group III was \$0.32 — the overall average gain for all entry personnel was \$0.49 an hour. Converted to an annual wage figure, this means an increase of \$1,019.20 for a year with 2,080 regular work hours.

It was not feasible, and probably not desirable, to analyze all circumstances of employment in each of the employing cities. For the purposes of this investigation averages in wages and data about retention were most important. In only one city was data of this sort looked at apart from the others. The City of Dallas was the largest employer of the PSC enrollees. There were 66, or 95.7 percent, of the 69 entry graduates from Dallas who continued in employment with that City. Their wages ranged during the time span of this investigation from a low of \$1.90 an hour to a high of \$3.79 an hour. The average wage of the Dallas entry enrollees was \$2.17 an hour. In May of 1973 the recorded average was \$2.72. This represents an increase of \$0.55 an hour or \$0.06 an hour more for the Dallas workers than for the total of 120 entry workers.

Recognition of the skills that were developed and the related job knowledges which were learned in the PSC employment and training program is evident in the wage increase information. It is also reflected in the number of promotions earned by 87 of the 120 graduates of the PSC entry employment and training. The majority of these entry people at the time they enrolled in the PSC program were unskilled; and lacked job related knowledges, work habits, and motivation. With these and other job factors involved, it is important to note that 72.5 percent of these 120 workers received one or more promotions. There were 53.3 percent of the workers given promotions in the unclassified job categories, 14.2 percent given promotions from unclassified to classified jobs, and 5.0 percent were given promotions in the classified positions. These data are shown in Table VII.

The promotions data in Table VII indicate that in Entry Group I there were 23 graduates who had the opportunity to demonstrate vertical and/or lateral mobility. Of the seven men who did not get promotions, one was still employed in May of 1973 by the city from which he enrolled in the PSC program. He had received a \$0.74 an hour increase in pay. He had an eighth grade education,

TABLE VII
PROMOTIONS[#] GAINED BY 258 PSC GRADUATES

Category	Promotions Gained				Totals
	Unclassified	Unclassified to Classified	Classified	None	
Entry:					
Group I	9	6	1	7	23
Group II	16	6	1	7	30
Group III	39	5	4	19	67
Totals	64	17	6	33	120
Percent of 120	53.3	14.2	5.0	27.5	100.0
Upgrade:					
Group I	0	6	20	3	29
Group II	3	1	17	7	28
Group III	19	8	27	27	81
Totals	22	15	64	37	138
Percent of 138	15.9	10.9	46.4	26.8	100.0

[#]Some employees got more than one promotion. This table is a tabulation of the "highest" promotion received.

a factor which limits upward mobility. In Entry Group II, only three still employed in May of 1973 by the cities from which they enrolled had not received promotions; however, they had received raises of \$0.75, \$0.99, and \$1.34 per hour. Two of these three men demonstrated lateral mobility by transferring to related jobs with the same employer. In Entry Group III, 14 of the 67 graduates received raises but not promotions. It should be noted, however, that the time span of continuing employment since graduation had dropped to 12 months for Group III.

Table VIII showing the employment status of 258 PSC graduates, as of May, 1973, has much significance in terms of evaluation of the effectiveness of the employment and training program. The data are representative of the extent to which graduates of the initial six months phase of employment and training continued in jobs. Involved here is retention in jobs for 24 months in the case of Entry Group I, 18 months with Group II, and 12 months with Group III.

Nine men in Entry Group I were still employed in May, 1973 by the cities from which they enrolled in the PSC program. Nine others left that initial employment; 8 to take jobs they thought were better and 1 to enter military service. Four men abandoned their jobs. They quit without any indication of better employment or even expectation of any kind of employment. Only one person, in Entry Group I was discharged. Significantly, 17 of the 23 PSC graduates in Entry Group I were in jobs in May, 1973. They constitute 73.9 percent of that group and a relatively high rate of retention in jobs.

TABLE VIII
EMPLOYMENT STATUS OF 258 PSC GRADUATES, MAY 1973

Category	Still Employed with City	Good Cause Terminations*	Other Terminations**	Totals
Entry:				
Group I	9	9	5	23
Group II	14	13	2	30
Group III	39	20	8	67
Totals	62	42	16	120
Percent of 120	51.7	35.0	13.3	100.0
Upgrade:				
Group I	25	3	1	29
Group II	25	1	2	28
Group III	62	13	6	81
Totals	112	17	9	138
Percent of 138	81.2	12.3	6.5	100.0

* Took a better job, went into military service or died.

** Abandoned job, was incarcerated, or dismissed from job.

The data for Entry Group II are similar. The 14 men still employed by the cities from which they were enrolled in the PSC program and the 11 who moved to other jobs constitute the 83.3 percent who continued to be employed after 18 months. In Entry Group III the percentage of continued employment after 12 months was 88.1. It is apparent that time does take its toll. The job retention rate moves downward as the time span increases.

For the entire category of entry employees, the data are as follows: 62 men still employed by the cities from which they enrolled, 40 men moved to other jobs but continued to be employed. The 102 continuing in employment were 85.0 percent of the 120 who completed the initial six-months employment and training program. This high level of continuous employment by people who entered jobs via the PSC program indicates that the program was effective.

Employment and Training Results Achieved by Upgrade Personnel

The 145 upgrade people were employed in 11 different cities with varied employment circumstances. As with the entry jobs, the cities were not uniform in the use of the job titles and categories of work which the upgrade people were doing. The employment was restricted to the same five departmental fields applicable to the entry people. The numbers of upgrade people in the respective fields are shown in Table IV.

Ninety-eight, or approximately two-thirds, of the upgrade people were in the field of water distribution and water plant operation. As with the entry people, the majority of them were employed in the Water Distribution Division of the City of Dallas. There were 21 job classifications for which upgrade people were trained in this program. They are indicated in the listing here:

Water Distribution and Plant Operation

Construction Worker	Telephone Operator
Pipe Fitter Helper	Order Clerk
Water Meter Repairman	Maintenance Foreman
Truck Driver, Light	Water Main Installation Foreman
Automotive Equipment Operator	Superintendent, Water Plant
Water Plant Operator	

Water Collection and Treatment Plant Operation

Maintenance Man	Sewer Installation Foreman
Automotive Equipment Operator	Superintendent, Wastewater Plant
Wastewater Treatment Plant Operator	

Solid Waste Disposal

Garbage Collector	Automotive Equipment Operator
Garbage Collection Foreman	

Parks and Recreation

Greenhouse Operator

Street Maintenance

Maintenance Foreman

The jobs indicated above were in most instances similar and the employment and training requirements were relatively uniform among the 11 cities.

Results Achieved by Upgrade Personnel During the Six-Months Employment and Training Period — Even though the upgrade people were drawn from the ranks of "permanent" personnel, the six months of the PSC program constituted for them an employment AND training period. They were in training one day and at work four days of each week. As with the entry people, the most important result to be achieved by the upgrade individual during the six-months period was completion of the program.

One hundred thirty eight of the 145 upgrade people completed the six-months program in which their employment and training were combined. This is a completion rate of 95.2 percent. The completion pattern varied somewhat among the three groups of upgrade people.

	<u>Number Enrolled</u>	<u>Number Completed</u>	<u>Percent</u>
Group I	30	29	96.7
Group II	33	28	84.8
Group III	82	81	98.8

No attempt was made to isolate particular elements that may have been most essential to achievement of this high rate of completion. The training was at all times closely related to self-accountability. This may have been one of the keys to keeping individuals in the program.

The completion record of 95.2 percent is made to look even better with study of the circumstances under which the seven people failed to complete the program. Four of these people accepted other employment, giving higher wages as their reason for leaving. One person went into military service. The two persons who definitely "failed" to complete the program were terminated by the cities that had recommended them for the PSC program. The seven people who for various reasons did not complete the program constituted 4.8 percent of the total of 145 upgrade people. The two people who were terminated for not good reasons constituted only 1.4 percent of the total group.

As with the entry people, the earning of high school equivalency certificates was an important result of the employment and training program for the upgrade group. When the 145 upgrade people were enrolled in the PSC program, there were 33 who held high school diplomas attesting to their 12 years of educational exposure. Seven of these 33 people had also attended college for one or more years. One hundred twelve of the upgrade people had been in school for 11 or fewer years. These and other data are summarized in Table III.

As a result of the upgrade employment and training program, 52 people, or 46.4 percent of those with less than 12 years of educational exposure, passed the GED examinations and were awarded high school equivalency certificates. An additional 29 persons evidenced upgrading of their general education by passing parts of the GED examinations. A total of 81 persons, or 72.3 percent of the 112, experienced either full or partial success in regard to General Educational Development. This is revealed in Table V.

When the upgrade groups enrolled for the PSC program they had an average grade level of educational exposure of 9.32. After the GED results were in, the average grade level of the 145 upgrade people was 10.40. The average grade level of these trainees was increased by 1.08 grades. This, like the entry achievement, is a substantial increase, since the time that could be devoted to General Educational Development was limited.

Following their six months of combined employment and training, 19 upgrade people passed the examinations for Health Department Certificates, all of them in water plant operation. This group made up 19.4 percent of the 98 upgrade people drawn from the field of water distribution and water plant operation. Since the number of men in water distribution far exceeded the number in water plant operation, this percentage looms larger in its significance. The 19 certificates earned were distributed as follows:

"B" in water plant operation	5
"C" in water plant operation	9
"D" in water plant operation	5

Again, it should be noted that the portion of the 200-hour orientation and training program devoted directly to preparation for examinations in water plant operation was relatively small. For the most part, the men who earned these certificates did so after much independent directed study and homework. Their experience in the PSC program provided the special motivation they needed to achieve the certification.

As with the entry groups, one day of the upgrade training was devoted to first aid. The American Red Cross materials were used and the instructor was certified to do the training. Seventy-two, or 49.7 percent, of the upgrade people earned certificates in first aid. Most of the others were subjected to the first aid training and benefited to some extent from it. For the upgrade people this was a part of the total health and safety instruction provided.

Results Achieved by Upgrade Workers in Continuing Employment - The upgrade people in this PSC program were drawn from the ranks of the "regular" employees in 11 cities. They were recommended for upgrade training by their immediate supervisors or foremen. Individuals were recommended for the training because they lacked upward mobility. They were not progressing in their jobs and careers, seemingly because of inadequate training for work. Many of them were "prodded" into the training program by their supervisors in the hope that the PSC training would extend their capabilities.

Each upgrade person was enrolled for approximately six-months of training which included orientation, counseling, and classroom instruction. He was in the training circumstances one day each week and at his regular job the remaining four days. His training and his supervised work were aimed at making him more competent in his regular job and preparing him for the job above on the career ladder. When he "graduated", he was continued in employment with the expectation of career advancement.

Continuation in employment with increases in wages was one measure of success for the upgrade people who completed the training phase of the program. There were 138 persons who graduated as upgrade personnel. Their wage increases ranged from \$0.00 to \$1.61 an hour. The increases for the 138 people averaged \$0.50 an hour. There were 10 persons who did not receive pay increases. Thus, for the 100 who did, the average increase was \$0.54. Please refer to Table VI for all data on wages.

The total time span for Upgrade Group I was 30 months from enrollment in December, 1970 to when data were accumulated in May, 1973. The average wage of the 30 persons in the group at their enrollment was \$3.16 an hour. The wages recorded in May, 1973 were averaged to show increases. The average of these figures for the 29 people in Upgrade Group I who completed the employment and training phase was \$3.76 an hour, an increase of \$0.60 over the beginning average.

Similarly, with Upgrade Group II the wage figures were averaged to show increases. With a time span of 24 months, the 33 who enrolled for training had an average wage of \$3.14 an hour. The

wages recorded in May, 1973 for the 28 graduates in Upgrade Group II averaged \$3.72 an hour, for an increase of \$0.58 an hour. Even though the time span for Group II was six months less than for Group I, that group averaged only \$0.02 an hour less.

The enrollees in Upgrade Group III began with a lower average wage of \$2.99 an hour. With a total time span of 18 months, their recorded wages in May 1973 averaged \$3.40 an hour for an increase of \$0.41. To summarize, the average wage increase for Upgrade Group I was \$0.60, Group II was \$0.58, Group III was \$0.41 — the overall average gain for all upgrade personnel was \$0.50. Converted to an annual wage figure, this means an increase of \$1,040.00 for a year with 2,080 regular work hours.

The fundamental intent of upgrade training in any PSC program is to enable established employees to develop the capabilities they need to gain advancements and promotions in jobs. The goal is to help them achieve upward mobility as opposed to remaining stagnant in jobs. The extent of the effectiveness of the NCTCOG training program in this regard is reflected in the number of promotions earned by the upgrade people.

Of the 138 graduates of the upgrade training, 101, or 73.2 percent, received one or more promotions each prior to the data accumulation in May, 1973. There were 15.9 percent of the upgrade people who received promotions in unclassified job categories, 10.9 percent were given promotions from unclassified to classified jobs, and 46.4 percent in classified jobs were promoted to higher classified job categories. These data are in Table VII.

Of the 138 graduates of the upgrade training, 15 persons had been terminated and 123 were still employed in May, 1973 by the cities from which they enrolled in the PSC program. Of the 123 still employed by the cities, there were 19 persons who had not been promoted in job classification but who had received substantial wage increases. These people advanced in their employment, at least in part, as a result of their upgrade training. Adding together the 101 people with clear-cut promotions and the 19 who advanced only in salary, the total is 120, or 87.0 percent of the 138 who were graduated from the training component. This is another solid indicator of the effectiveness of the PSC program.

The data in Table VIII showing the employment status of 258 PSC graduates, as of May, 1973, has much significance in terms of evaluation of the effectiveness of the employment and training provided for the 138 upgrade people. The data are representative of the extent to which the 138 upgrade graduates of the initial six-months phase of the program continued in jobs following their graduation. As with the entry employees, retention in jobs was for 24 months with Upgrade Group I, 18 months with Group II, and 12 months with Group III.

Twenty-five people in Upgrade Group I were still employed in May, 1973 by the cities from which they enrolled in the PSC program. Three others left that initial employment to take jobs they thought were better. One individual quit his job without an indication of other employment. Since 25 people remained with the cities and 3 moved to other good employment, the total continuing in jobs is 28. The 28 people in jobs represent 96.6 percent of the 29 training component graduates of Upgrade Group I.

The data for Upgrade Group II are similar. Again, 25 people were still employed by the cities from which they were enrolled in the PSC program. One person had died and two had quit without indicating a move to another job. The 25 still employed were 89.3 percent of the 28 training graduates in Upgrade Group II. This again indicated a high level of retention in jobs.

In Upgrade Group III the percentage of continued employment after 12 months was 90.1. This percentage is derived from adding 62 persons still with the particular cities and 11 persons terminat-

ing to take other good jobs. The 73 persons continuing in employment make up the 90.1 percent of the 81 Upgrade Group III graduates of training. Retention in jobs was at a relatively high and consistent level with all three groups of upgrade trainees.

Section Summary

In the first part of this section, the nature and scope of the evaluation investigation are described, along with information relative to sources of the data and methods of handling it. In the second part, there is biographical information about both the entry and upgrade people involved in the employment and training program. The first two parts constitute background and basic information that is fundamental to forming a perspective from which to consider the outcomes or results of the program.

In the third portion of this section, the elements are presented that constitute in total the impact of the employment and training conducted by the North Central Texas Council of Governments with 125 entry and 145 upgrade people. To summarize concisely, the elements of "impact" are indicated below for both entry and upgrade.

Completion of six-months employment and training

Entry: 120 completions; 96.0 percent -- 5 did not complete; 3 for good reasons, 2 quit the training and their jobs.

Upgrade: 138 completions; 95.2 percent -- 7 did not complete; 5 for good reasons, 2 were fired.

The initial and formal program, in which employment and training were combined for a period of approximately six months, was completed by 258 of the 270 persons enrolled. This is a program completion rate of 95.6 percent.

Continuing employment -- ranging from 12 to 24 months

Entry: 62 still employed by city from which initially enrolled in the PSC program; 51.7 percent of the graduates -- 40, or 33.3 percent, working elsewhere with "good cause" terminations; 18, or 15.0 percent, terminated for reasons that cannot be considered good or died. Two entry employees were "fired" during the 30-month time frame of this investigation.

Upgrade: 112 still employed by city from which enrolled in training, 81.2 percent of 138 graduates -- 14, or 10.1 percent, working elsewhere with "good cause" terminations; 12, or 8.7 percent, terminated for reasons that cannot be considered good or died.

The program was developed with the intent of retaining people in jobs and promoting stability in employment in public service careers. In this case, 174 of 258 graduates of the job preparatory program were, after from 12 to 24 months, still employed with the cities from which they enrolled in the PSC program; 54 persons had moved to what they thought were better jobs or had gone into military service. Thus, at the date the evaluation information was accumulated, May, 1973, 228, or 88.4 percent of the 258, were continuing in jobs or had terminated under "normal" conditions. In effect, then, the post-graduate employment retention rate was 88.4 percent for the people in the program.

Advancement in jobs

Entry: 87 men, 72.5 percent, of the 120 graduates of the initial employment and training phase received one or more job promotions — 33 men failed to receive job status promotions but 11 of them received substantial increases in their hourly wages. Thus, a total of 98 entry men were advanced in their jobs.

Upgrade: 101 persons, 73.2 percent, of 138 graduates of the initial phase received one or more job promotions — 37 persons failed to receive job status promotions but 19 of them received substantial increases in their hourly wages. Thus, a total of 120 persons were advanced in their jobs.

One of the fundamental intents of the PSC program was to provide people with upward mobility, both in entry and upgrade situations. In this program 258 of 270 people moved through the initial phase into continuing employment where advancement was possible. Promotions in job status along with increases in pay were achieved by 188 persons and increases in pay only were gained by 30 others. Thus, through this PSC program a total of 218, or 84.5 percent, of 258 "graduates" of job training achieved advancement in jobs.

Wages earned

Entry: The average wage for 125 men was \$2.15 an hour at the time of enrollment in the PSC program. The average of the wages reported for 120 men when the evaluation information was collected was \$2.64 an hour. The average hourly wage was increased over the 18- to 30- month time span by \$0.49 per hour. This figure is skewed downward somewhat by the fact that some of the 120 men had been terminated short of the full time possible for pay increases and that the "pay freeze" had an effect.

Upgrade: The average wage for 145 persons was \$3.05 an hour at the time of enrollment for training. The average of the wages reported for 138 persons when the evaluation was conducted was \$3.55. The average hourly wage increase was \$0.50. Again, this figure is skewed downward by the terminations short of the full time in which pay raises might have been given and the "pay freeze".

The PSC employment and training was conducted in an effort to help people gain for themselves better living conditions. Increases in wages tend to bring this about. Although the wages of the entry and upgrade people started at different levels, the increases in pay were very similar. For both categories of workers the average yearly income increased by approximately \$1,000. This appears to be a substantial increase over as little as 18 months and, at most, 30 months.

Much more detail regarding these major findings and statements of lesser findings are provided throughout this section.

While numerous goals and sub-goals existed for this PSC employment and training program, four major goals stood out. First, new hires were to be employed and trained; "permanent" employees were to be upgraded. This meant that major goal number one was to employ and train people.

Second, the unemployed or underemployed new hires were to be continued in employment, assuming that they satisfactorily completed the combined employment and training phase of the program. Too, the permanent employees were to be continued in jobs following their upgrade training. Thus, major goal number two was job retention.

Third, both the entry and upgrade people were to be helped to achieve upward mobility capabilities in terms of advancement in job status. During the initial period of combined employment and training the individual was expected to acquire knowledges and develop skills with which he could expect to move upward in a career by means of continued employment. Thus, major goal number three was advancement in jobs.

Fourth, the individuals in the program were to be helped to earn more than they had in the past, whether as new hires or as established employees. This meant that major goal number four was good wages for the new hires and increases in pay along the way for both categories of workers.

The evidence in this section indicates in solid and substantial ways that the four major goals of the PSC employment and training program were reached. In particular, the completion data, the continuing employment information, the record of promotions, and the wage averages make it appear that the program was highly "successful". From the standpoint of evaluation of effectiveness, the program was great!

SECTION III
PUBLIC SERVICE CAREERS
TRAINING PROGRAM

The program offered by the North Central Texas Council of Governments prepares people for work in fields of public service where need for trained labor exists. Fields in which training is offered include water distribution and water plant operation, wastewater collection and wastewater treatment plant operation, solid waste disposal, parks and recreation, and street maintenance. Initial employment and job advancements are made available to people as the multiple municipal work forces try, through the employment and training program, to provide more extensive and better public services in the North Central Texas area.

This public service careers program assists unemployed and underemployed persons as they take jobs for which training is available. For many of the participants this means removal of obstacles to their employment.

Retention in the employment and training program is recognized as the key factor. The prime function of the program is to place people in job training and work situations that will fit them for continuous wage earning. Constant attempts are made to make the training so meaningful that the participants are motivated to remain in the program. The retention data in this report verifies that this goal of the program has been realized.

Scope of Training

The PSC program conducted by NCTCOG provides an array of training and supportive services—orientation, basic education, remedial education, job-related training, specific-skill training, first aid and safety training, personal and job counseling, job coaching, child care assistance, medical care, and transportation. In addition, foremen and supervisors are training in how to relate effectively to the worker-trainee.

All of the activities described here are aimed at helping each trainee:

1. To gain the fundamental general knowledges and the technical skills needed for his particular job.
2. To develop the interests, appreciations, ideals, understanding, and attitudes needed for proper interactions with others at work, at home, and in the community.
3. To become so adjusted to the world of work that retaining a job and advancing to the next job becomes relatively easy.

In the accomplishment of these goals, the counselors, teachers, and work supervisors direct the training toward fulfilling the performance demands of categories of jobs for career ladder sequences.

The teachers are well-versed in the content and methodology of the program. The counseling is done by people especially prepared to handle the problems of disadvantaged persons, of servicemen returning to civilian work, and of people whose employment has been disrupted by technological change.

Much use is made of personal relationships. Each trainee is guided in terms of his own characteristics and his unique problems. He is counseled throughout the program about his money management, his job development, the needs of his family, and his future as a worker in the public sector. The job coaching, supervision, and other human relations elements give this program the dimensions required to personalize for each trainee his preparation for the job, his on-the-job experiences, and his general employment conditions.

The Trainees

In the recruitment and selection of people for entering public service jobs, preference is given to unemployed over the underemployed. Individuals admitted to entry training in this PSC program are persons from families with incomes below the priority line for welfare recipients. They also are one or more of the following:

1. Young persons entering the labor force.
2. Persons 45 to 65 years of age or over.
3. Migrant farm workers.
4. Persons whose native tongue is not English, and whose ability to speak English is limited.
5. Persons who have become unemployed or underemployed as a result of technological change, or whose most recent employment was with Federal contractors who have cut back in employment (such as defense and aerospace).
6. Special veterans.
7. Members of minority groups, or who have otherwise come from socioeconomic backgrounds generally associated with substantial unemployment and underemployment.

The needs of the disadvantaged or functionally limited person are met in several ways. Study materials are varied in reading difficulty. Visual aids, in quantity, are used to help those with limited reading ability.

Components of the Training Program

Orientation

The instruction, guidance, and self-help aspects of the orientation are programed to enable the trainees to adjust to both training and work conditions. Each trainee is helped to best present himself by means of neat and accurate completion of training and employment forms. General ability, physical, and other examinations are used to assess the potential of trainees for meeting their job requirements. Each trainee learns about the work habits and other personal requirements expected of him. He is informed of the procedures, rules, and benefits relating to public service work. He is motivated to responsibly enter into his training and his work. He is shown how, with increased earning power, he can better fulfill his family obligations.

Motivation is emphasized in the orientation of trainees. Many of the trainees are high school and grade school dropouts. They find it hard to return to study activities, so extensive encouragement toward advancement through training is provided.

Four major modules of content are covered in the orientation: (1) introduction to staff, facilities, and program; (2) improvement of relationships with others; (3) manpower development through training; and, (4) background of public service as a major area of employment.

Basic and Remedial Training

The goals of this component of the training program are to help the trainee gain the basic education required in almost any work situation: communications; mathematics; science; and, for those who have not finished their high school education, general review and preparation for the GED test.

Communication includes reading, writing, speaking, listening, and techniques of studying. Use of whole numbers, fractions, and decimals is reviewed. Applied mathematics is varied according to the specific job description, but may include measurement, calculation of area and volume, percentages, work with money and time, and an introduction to graphs, maps, and blueprints. The study of science covers basic life science, physics, and chemistry. Review for the GED test consists of improving test-taking skills; improving facility in reading, vocabulary, grammar, spelling, arithmetic, and problem solving; and, with help from the instructors, work at analyzing and answering questions that involve reasoning, judgment, comparison, and evaluation.

Job-Related Training

This component is vital for trainees in any field of public service work. It consists of intensive training in (1) first aid and accident prevention; (2) personal and job behavior to help the trainee better understand himself and others and to help him develop a feeling of security; and, (3) the basic technical aspects and requirements of the trainee's job classification.

Job Skills Training

The job skills training component covers the specific, in-depth technical training required to prepare each trainee for his job, the content is determined from the job description and data drawn from work supervisors.

The job skills training is closely coupled with the supervised work experience. The classroom instructor keeps in close contact with the work supervisor in efforts to keep the learning immediately applicable in the job. The supervisor similarly draws from the instructor ideas and techniques for making the work experience most valuable.

* * * * *

Please refer to the next two pages for illustrations of the training pattern in this PSC program. The summary of PREPARATION FOR WORK IN WASTEWATER TREATMENT is indicative of training for one family of PSC jobs. The training for other families of jobs, such as street maintenance or parks and recreation, would be similar. The PUBLIC SERVICE CAREERS TRAINING MODEL is also indicative of what makes up the PSC training program. It is, with modifications, appropriate for use with any family of PSC jobs.

TRAINING FOR PUBLIC SERVICE CAREERS

North Central Texas Council of Governments

(preparation for work in wastewater treatment)

<u>Training Modules</u>	<u>Entry Hours</u>	<u>Upgrade Hours</u>
Orientation	40	20
1. Introduction	10	8
2. Improvement of Relations with Others	8	8
3. Manpower Development Thru Training	6	4
4. Wastewater Systems	<u>16</u>	<u>—</u>
Basic, Remedial, and General Training	66	66
5. Communications	20	20
6. Mathematics	20	20
7. Science	10	10
8. General Educational Development	<u>16</u>	<u>16</u>
Job Related Training	40	30
9. First Aid & Accident Prevention	12	10
10. Personal and Job Behavior	8	8
11. Wastewater Understandings	<u>20</u>	<u>12</u>
Job Preparatory Skills Training	54	84
12. Wastewater Work Skills		
a. Wastewater Works Operation	20	—
b. Wastewater Systems, Advanced	—	20
13. Safety in Wastewater Operations	8	8
14. Specific Job Skills — based on particular job descriptions	<u>26</u>	<u>56</u>
Supervised Work Experience	640	640
15. On-the-job experience — determined for each trainee by his particular job classification and the help in learning given by his foreman and supervisor	<u>640</u>	<u>640</u>
TOTAL HOURS — in both training and work experience	<u><u>840</u></u>	<u><u>840</u></u>

Note: Special counseling and job coaching permeate the entire program of 840 hours. This is accomplished by means of one-to-one contacts and in small groups.

↑
Continued Career Development

On-the-Job Supervised Work Experience

Counseling – Job Coaching
Specific Job Skills Development
Specific Safety Training
Worker Supervisor Relations

640 hours (20 weeks)

Entry Jobs Preparatory Skills

40 hours

Upgrade Jobs Skills

40 hours

Job-Related Training

Use & Care of Tools, First Aid & Safety, Money
Management, Grooming, Social Development

54 hours

Basic, Remedial, & General Education

Communications, Social Studies,
Mathematics, & Science
(GED if needed)

66 hours

Orientation

to Work & Self Awareness

40 hours

PUBLIC SERVICE CAREERS TRAINING MODEL
for
ENTRY EMPLOYMENT AND UPWARD MOBILITY

SECTION IV
DIMENSIONS OF TRAINING COST
(Benefits accruing to the City of Dallas
as a result of PSC training)

by J. P. (Jim) Reames
Manager of Water Distribution
Dallas, Texas

Would you believe an \$18,769 cost to train one pipe fitter?

This is what the Distribution Division of the Dallas Water
Utilities has been paying.

There must be a better way!!!

This section consists of especially significant information. The concern is with the cost effectiveness of employment and training as it applies to entry jobs in the Water Distribution Division of the Dallas Water Utilities Department. The data here are from a single operational unit. They do not reflect averages among cities. The data provide specificity and detail about costs that could not be accumulated for the overall group of 20 cities served by the public service careers program.

The author recognizes that the statistics may not apply to any other division in the City of Dallas, or any other jurisdiction. It is expected, however, that the methods employed in arriving at the figures would be applicable and the conclusion reached is valid.

Aspects of Employment and Training

A stated intent of the Public Service Careers program was to provide orientation, remedial education, and technical skills training to disadvantaged, unskilled, newly-hired laboring employees. It was an effort to improve and increase their skills and to give them an appreciation of and motivation toward the opportunities open to career public service people.

Statistics on the overall program as well as the segment conducted in Distribution Division prove, beyond a doubt, that PSC has accomplished its goal. Not so obvious, however, is the answer to a frequently asked question — "Was it worth the price?"

Quantification of the Dollar Value

The author has sought for many years to discover a method of accurately quantifying the dollar value of training. The approach utilized in this study developed out of discussions with people representing every aspect of the problem. Those involved included: water utility managers, supervisors, and foremen; personnel directors and training directors, both public and private; management consultants; management and technical instructors; public health officials; and most importantly, the workers themselves, both trained and untrained.

About the Author: Jim Reames has been in water utility work since 1957. His background of experience makes him eminently qualified to point up the problems and possible solutions. It was his intense interest in good employment and training practices that prompted him to devote much time and effort to development of the material in this section.

The most frequent approach to cost effectiveness of a "social program" deals with long range benefits to the taxpayer and this is, of course, an important aspect. This analysis was made in an effort to establish the here and now economic impact of training efforts; the pure dollars and cents answer to the question "What does it cost to train an employee?" The key factor here is the working definition of proficiency. The context is that, "The proficient employee is fully trained and is putting his training into practice."

To further explain or define the term "proficiency", as it is applied in this section, the following elements are indicated:

The proficient worker:

Knows his tools and when to use each of them.

Knows his job in terms of its parts and the sequences in which tasks should be performed.

Is self initiating. He can see what needs doing and does it without being prodded.

Can work independently except when it takes two or more to do the job.

Understands his role in "production" and how quantity and quality standards are met.

Relates well to supervision. In turn, he is helpful to those he supervises.

The proficient worker is the product of both good training and good work experience.

All workers must necessarily receive some form and some quantity of orientation and training. Otherwise, they would be unable to do their jobs. Employers differ widely, however, in their means and methods of providing orientation and training to the work force.

The "Sink or Swim" Tactic

One extreme — and apparently the most common — involves simply letting a new man shift for himself. There is no formal system of training available to him and his foreman neglects helping him over the rough spots. The foreman and supervisors often are not concerned even with learning the man's name. They call him "Hey you!"

This employer may reason that the worker who is "on the ball" will figure it all out for himself. If he shows sufficient initiative to ask the right questions at the right time, if he studies the technical aspects of the job on his own time, if he "hangs in there" and doesn't become discouraged, then he will probably "make it"

As a result of this situation, many foremen and supervisors are not familiar with even the most basic tools for managing their human resources. As a matter of fact, they may resent the employee who shows initiative and will go to some length to prevent his learning too much about his job and the organization. They see him as a threat to their job security. Therefore, rather than helping to orient and train the new employee, such foremen frequently tend to intentionally retard the trainee's learning process.

Few managers would argue for this "sink or swim" tactic. But it is prevalent in many organizations, simply because management neglects its orientation and training chores.

"All the Way" with Training

The other extreme is a carefully-planned and professionally-executed program of orientation beginning on the worker's first day on the payroll and covering all phases of the company's business. He is shown the various opportunities for advancement and what steps he must take to achieve them. His foreman knows and uses his name. He is shown and made to feel that he is important as an individual. To back this up, there is an equally well-planned and professionally-executed program of training geared to help each individual employee develop his job skills, improve his promotability, and increase his earnings.

A surprising number of managers will argue against going "all the way" with orientation and training. Their major point concerns the expense of formal training. The data and information that follows will hopefully resolve that argument.

Perspective of This Analysis

This analysis deals specifically with 104 employees who were hired between mid 1970 and early 1972. Fifty-two of these people were enrolled in the PSC Training Program. Seven terminated prior to completion and 45 graduated. Each of the trainees cost the federal taxpayer \$1,198.40 (approximately \$200.00 per month) and cost the Water Distribution Division wages for one day per week off the job for classroom training.

The other 52 received no formal training. They were, in effect, allowed to sink or swim. There was no direct cost to the federal taxpayer or to the City for training these people, or was there?

Each of the 104 employees was hired as a Laborer. No skills or previous experience are required to become a Laborer. It is not the intent, however, of the Water Distribution Division to hire career laborers. Every new employee is actually in training from his first day on the job to become a Pipe Fitter. Substantial skills must be mastered prior to the employee's reaching 100 percent proficiency as a pipe fitter.

This study addresses three separate, but closely related aspects of employment and training: (1) employee cost, (2) employee proficiency, and (3) personnel turnover.

Total Employee Cost

The total cost of an employee is obviously much more than his salary alone. The various major ways that the City of Dallas supports each employee monetarily are:

<u>Cost Items</u>	<u>Percent of Salary</u>
<u>Salary</u> : \$381.00 per month for beginning laborer to \$523.00 per month for pipe fitter.	100.00
<u>Benefits</u> : Vacation, sick leave, retirement, life insurance, health and accident insurance, jury duty leave, military duty leave, death in family leave, and others.	20.47
<u>Administrative</u> : Personnel and civil service departmental costs, payroll and clerical costs, paycheck preparation and processing, and 15 percent of administrative and managerial salaries.	5.61
<u>Training</u> : Total training budget for seminars, short schools, etc.	0.54
Total	126.62

Regardless of how such costs vary among cities over the country, they remain substantial in all cities.

Employee Proficiency Data

The data on employee proficiency were derived from more than one hundred exhaustive interviews with Water Distribution Division supervisors, foremen, and workers who had personal contact with the people in the two study groups.

The major purpose of the interviews was to ascertain the relative proficiency of the average employee in each of the two groups at various points in time. The foremen and supervisors discussed the question, "When do you consider that an employee is earning his pay?" They were questioned about their specific experiences with fast learners, slow starters, and various other categories of new employees who did not receive any formal training. They were asked to comment in detail on the performance, proficiency, attitudes, and productivity of the PSC trainees with whom they had direct contact, and to compare them with various untrained employees with similar backgrounds prior to employment.

The author sought diligently and objectively to sort and interpret the interview data and presents what he sincerely believes to be true averages. The indicators are that:

1. The training method in use by the Water Distribution Division prior to the PSC program was "sink or swim" as described above with two exceptions.
 - a. There did exist an orientation program conducted on a City-wide Basis which was not judged to have any visible effect on the employees who attended.
 - b. A few (less than 25 percent) of the supervisors and foremen had attended short courses on supervision which helped them recognize and appreciate the advantages of having well-trained workmen under their supervision.
2. Although each individual employee approaches proficiency at a different overall rate and at different rates during the training period, the mean rate is a straight line.
3. The average time required for a sink or swim trainee to reach proficiency is 21 months.
4. Although the PSC trainee is off the job one day per week during the six-month PSC period, his proficiency level rises at a straight rate through this period and beyond.
5. The average time required for a PSC trainee to reach full proficiency is 13 months.
6. The average beginning laborer employee without prior experience is worth no more than \$200.00 per month on his first day on the job.

Salary Information

All labor employees receive longevity salary increases at 3 months, 6 months, and 5 years. In addition to this, the supervisor is permitted to recommend three raises based on "merit".

The average employee in the sink or swim group received his discretionary merit raises at 9 months, 18 months, and will possibly receive the third at 36 months.

The average PSC trainee received his discretionary merit raises at 4 months, 10 months, and 18 months.

Comparative Employment and Training Costs

The tables on the next two pages summarize the Comparative Cost data for the two groups of workers. In Table I the costs are shown for the Sink or Swim Employee in terms of salary only, since he received no special training. Table II reflects the total cost of the PSC Employee, including the cost of his training. In Table II, the data are in a 21-month time frame to make them comparable to the data in Table I.

As mentioned earlier, proficiency is the key factor. An employee is actually in training until he reaches proficiency as a worker. The training cost is, therefore, the portion of the total employee cost that he did not actually earn.

Figure 1 graphically illustrates the relationship between earnings and training cost for an average sink or swim trainee. The total cost of the employee over the 21-month period from Table I is \$11,649. The area below his "proficiency line" represents his worth which amounts to \$8,694, or 74.6 percent of his total cost. The difference between total cost and earnings is the cost of training the employee which is \$2,955, or 25.4 percent of total cost.

TABLE IX
SINK OR SWIM EMPLOYEE COST

Time Employed (months)	Salary x 1.2662 (per mo.)	+	Training Cost (per mo.)	=	Total Cost (per mo.)	x	Interval (months)	=	Total Cost
0									
	\$482		0		\$482		3		\$ 1,446
3	507		0		507		3		1,521
6	532		0		532		3		1,596
9	578		0		578		9		5,202
18	628		0		628		3		1,884
21	Proficiency								<u>\$11,649</u>

TABLE X
PSC EMPLOYEE COST

Time Employed (months)	x	Salary 1.2662 (per mo.)	+	PSC Cost (per mo.)	=	Total Cost (per mo.)	x	Interval (months)	=	Total Cost
0										
3		\$482		\$200		\$682		3		\$ 2,046
4		507		200		707		1		707
6		551		200		751		2		1,502
10		578		0		578		4		2,312
13		628		0		628		3		1,884
		Proficiency								\$ 8,451
18		628		0		628		5		3,140
21		663		0		663		3		1,989
										<u>\$ 5,129</u>
Total										\$13,580

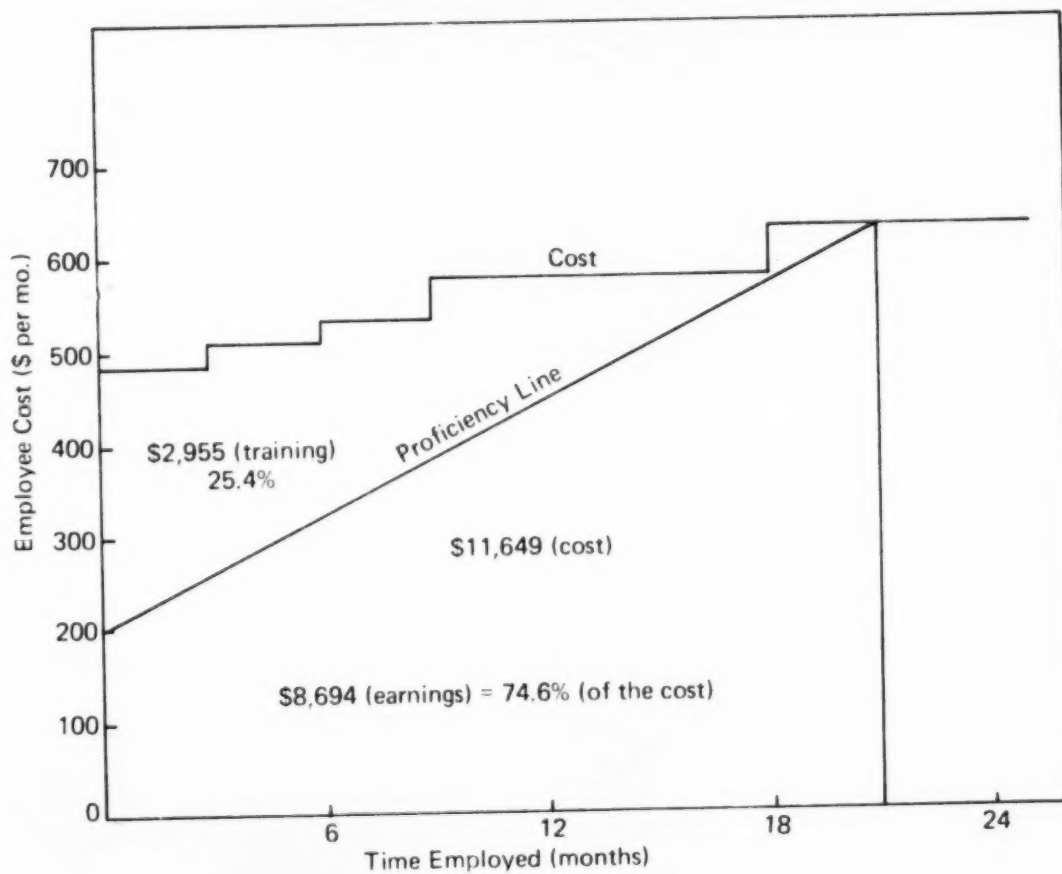


Figure 1 – Cost-Proficiency – with sink or swim approach

Figure 2 is a graphical illustration of an average PSC trainee. His total cost over a 21-month period is \$13,580, almost \$2,000 more than the sink or swim employee. His earnings, however, equalled his cost from the 13th month on. This man earned \$10,511, or 77.4 percent of his total cost. The training cost, including \$1,200 federal government expenditure, is \$3,069, or 22.6 percent of total cost.

Comparing the two sets of data, the \$114 additional training cost for the PSC trainee yielded \$1,817 in additional value to the employer!

Training and Job Retention

The length of time it takes to train an employee and the cost of doing so are two important factors. Retention on the job is, however, the critical factor. The training investment in an employee is completely sacrificed when he quits.

Payroll records indicate that only five men out of the control group of 52 "sink or swim" trainees are still working in the Water Distribution Division. One out of 10.4 stayed. It is necessary, therefore, to train 9.4 people, and wave good-bye to them, before we find one who will stick with us. This repetitive training of 10.4 people to obtain one proficient employee is shown in Figure 3.

On the other hand, 26, exactly half of the PSC trainees, are still on the payroll. Obviously, the training had a very significant effect on retention. With training, it appears necessary to train only one "quitter" as we find another employee who stays with us.

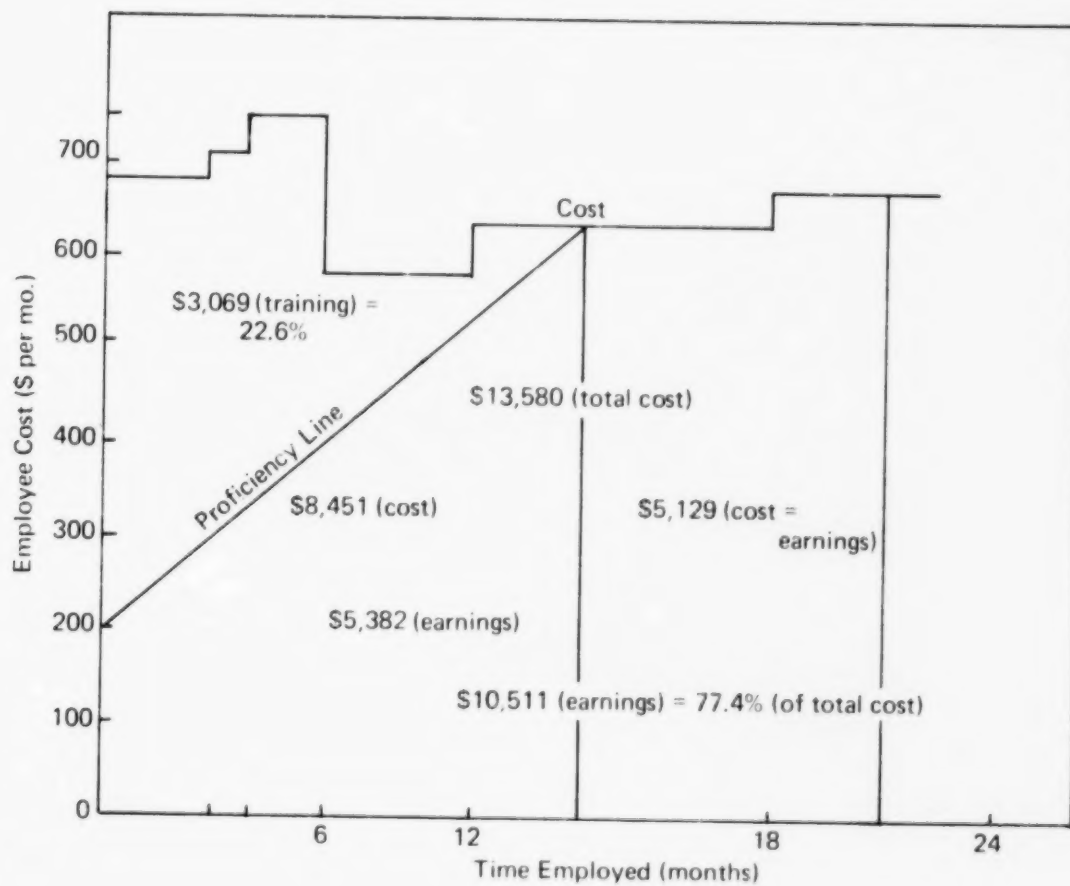


Figure 2 – Cost-Proficiency – with PSC training

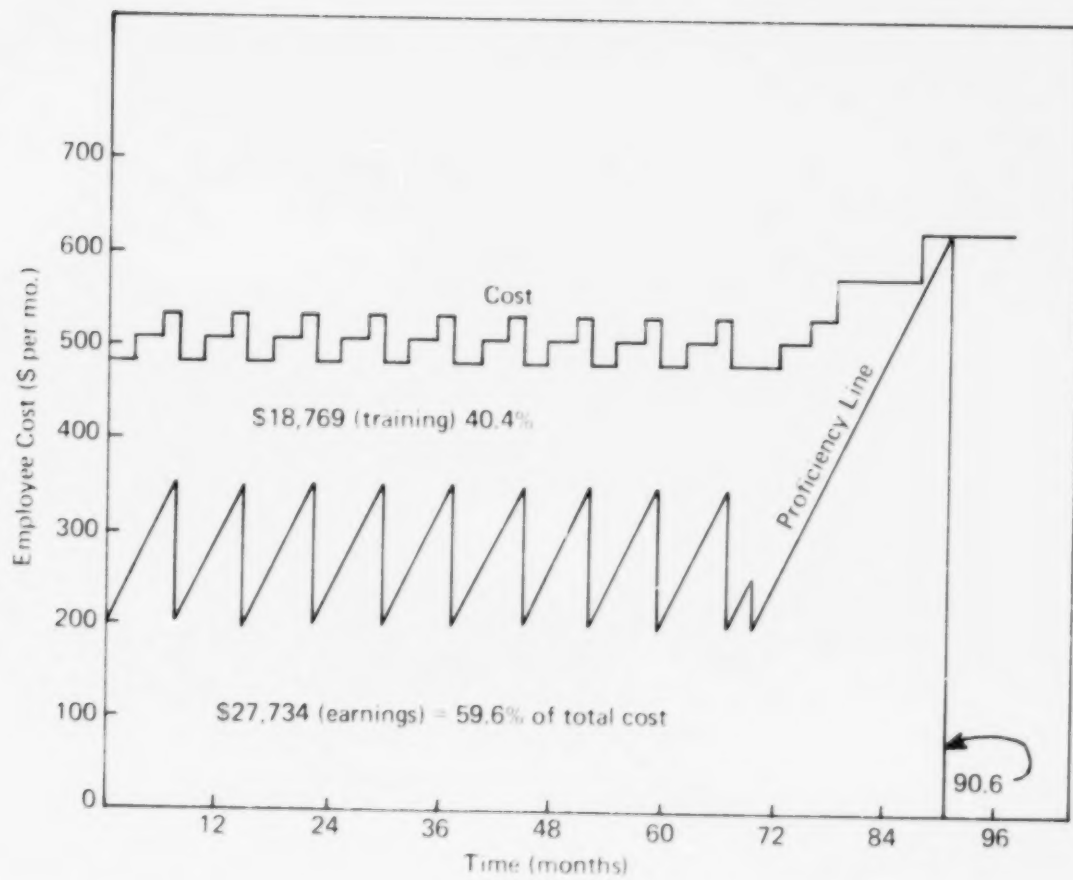


Figure 3 – Cost to Fill a Position with Sink or Swim Approach

Further analysis of payroll records reveals that the 47 control employees who terminated worked an average of 7.4 months. In sharp contrast, the average tenure of the 26 trained employees who quit was 12.9 months. This points up another significant effect of the PSC training.

Figure 3 also combines the previously presented data with the turnover and tenure data and presents a graphical illustration of the costs incurred in filling a position with an employee trained by the sink or swim method. Salary, benefits, administrative costs, and training (such as it is) totals \$46,503 over a 90.6-month period. Eighteen thousand seven hundred sixty-nine dollars, or 40.4 percent, of this cost is invested in training. The yield on this investment is \$27,734 in earnings.

Figure 4 illustrates the turnover and tenure plus cost and proficiency data on the average position filled by a PSC trainee over the same 90.6-month period used in Figure 3 for a sink or swim employee. In the case of the PSC trainee, it takes only 25.9 months to fill the position with a trained man, and from that point on he is fully earning his pay. The total cost is \$59,862 over the 90.6-month period including the PSC costs and a higher salary toward the end (5-year longevity raise). The training cost is \$6,136, or 10.2 percent of the total cost.

Conclusion

Comparing the training costs involved in filling a job with trained versus untrained employees, the savings experienced from an investment in formal training is \$12,633 per job. This provides back-up for the statement that hangs on the author's wall:

Training Water Utility Employees

Doesn't Cost — It Pays!

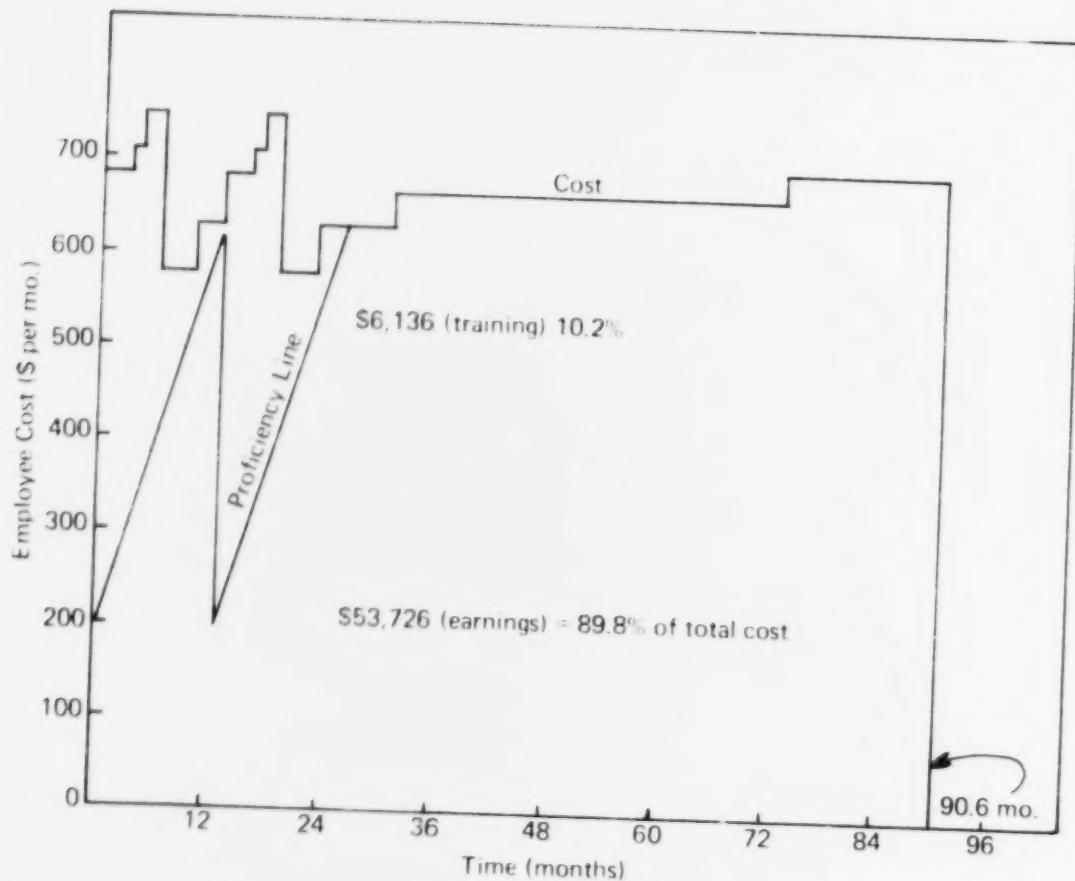


Figure 4 – Cost to Fill a Position With PSC Training

SECTION V

CONCLUSIONS

Pertaining to Employer Units

1. A public service careers employment and training program enables governmental operational units to achieve reductions in personnel costs. Fewer persons are hired, trained, supervised, and terminated in the effort to maintain the functional level of employment in each department or division. It is the commonly recognized "turnover cost" that is sharply reduced. This is true even when it is apparent that stability in employment results in higher wages being paid to long-term workers.

2. A public service careers employment and training program enables governmental operational units to achieve higher levels of productivity; in some instances along with reductions in work forces. This stems from improvement in work patterns and output as workers utilize refined, extended, and enhanced abilities daily in their jobs.

3. A public service careers employment and training program enables governmental operational units to develop cohesiveness, improve "team" efforts, more willingly accept individual and group responsibilities, and in other ways sharpen the cutting edge of each work force. This makes it possible for the operational unit to function with minimal internal strife and with a good public image.

4. A public service careers employment and training program enables governmental operational units to make use of a total system that will provide skilled workers, foremen, supervisors, and even relatively high-level administrative people as they are needed. This means, also, that promotion from within opens up opportunities for new hires in career entry jobs.

5. A public service careers employment and training program enables a governmental unit initially to organize and structure training to meet particular needs; then use the materials, methodology, equipment, and staff to extend such training to all employees in a continuing program over years to come.

Pertaining to Trainees

1. A public service careers employment and training program enables workers to achieve continuing employment at increasing wages. This job stability contributes to the building of fringe benefits along with increasing wages so that yearly incomes are substantially greater than in prior employment circumstances.

2. A public service careers employment and training program enables workers to demonstrate abilities and knowledges and to acquire evidence of capabilities. It is by means of such a program that workers may earn high school equivalency diplomas, first aid and safety certificates, "civil service" ratings, job proficiency certificates, and other indicators of levels of preparation reached and job proficiencies acquired.

3. A public service careers employment and training program enables workers to gain realistic pictures of their abilities to earn and advance. This generally adds to motivation, builds enthusiasm, increases confidence, and encourages willingness to accept change.

4. A public service careers employment and training program enables workers to take both lateral and vertical steps in job development from a solid base of general and job-related preparation.

The worker learns that no job is dead end and that each step in his training and work experience leads to yet another step.

5. A public service careers employment and training program enables workers to gain from a total manpower development system what is required for them to learn to live better, both at home and at the job. The individual becomes a more viable member of his community, both socially and professionally. This is the result of workers being subjected to a program that is broad in scope, ranging from orientation to work and training, through general education and specific vocational preparation, and culminating in supervised work experience and continued employment.

Pertaining to the Community

1. A public service careers employment and training program enables a community to equalize employment opportunities and offer a route to good jobs in a primary labor market. This means steadier employment, higher wages, significant fringe benefits, and overall job security for government employees. The long-range outcome is improvement of relationships among employees and, in turn, enhancement of the community's public image.

2. A public service careers employment and training program enables a community to create jobs for the professionals and para-professionals who run the program. A staff is hired and gains experience under close supervision. Where support for a continuing manpower development and training program is evident, there is available for permanent service a staff of competent administrators, supervisors, teachers, and counselors.

3. A public service careers employment and training program enables a community (taxpayers) to gain substantial benefits, both tangible and intangible, under conditions that are favorable when measured with cost-benefit analysis as the economic yardstick. Additionally, the returns to taxpayers include: quality of water, police protection, and other services; lowered cost of capital maintenance and various plant operations; reduction in other kinds of support of the poor; monetary returns in tax payments; increase in money in circulation; trained persons who are better citizens; people with increased pride in themselves, and so forth.

SECTION VI

RECOMMENDATIONS

1. Career employment and training programs for public employees should be implemented and facilitated as rapidly as possible throughout the United States to ensure more meaningful approaches to control of time-people-money problems; to offset the sharply rising wage costs with increases in productivity.

If the competence of true professionals is brought to bear in the training of public service workers, the result is almost certain to be good, both educationally and monetarily.

2. Career employment and training should be approached as a long-run strategy, for both the worker and the employing unit.

This is the only way to take a person into an entry job, train him for that job, continue him in employment and in training for movement up to a better job, and then on to even higher levels of employment. For the worker, this means maximizing of income and job satisfactions over a period of time. For the employing unit, this means maximizing of productivity along with cutting of costs; in particular, cutting of the cost of employee turnover.

3. The professional trainers responsible for a public service careers employment and training program should be free to seek out effective methods of training in competitive circumstances and should then be held accountable for results in the form of retention of the worker-trainees.

The result will be good employment and training, properly developed in terms of a favorable cost-benefit ratio.

4. Evaluation of employment and training practices should be based primarily on measurable output criteria such as productive skills, retention in jobs, and advancement to better jobs.

These kinds of output constitute the payoff that should be the main reason for continued public support. In the evaluation processes, there should be only limited concern for input measures such as facilities, staff credentials, materials, techniques of training, and the entrance abilities of trainees, although these elements are fundamental to operation of the program.

SECTION VII
NORTH CENTRAL TEXAS
COUNCIL OF GOVERNMENTS

The North Central Texas Council of Governments (NCTCOG) is a voluntary association of cities, counties, school and special-purpose districts in the North Central Texas region. NCTCOG was organized to provide a forum for the discussion of areawide problems and to promote regional problem-solving through cooperative programs and comprehensive regional planning.

NCTCOG, the first organization of its kind in Texas, was established in January, 1966, under authority provided by the State Legislature in 1965 (Article 1011m, VACS). Legally a political subdivision of the State of Texas, NCTCOG is not a government. It has no taxing or enforcement powers and membership is voluntary. NCTCOG's membership region covers over 9,000 square miles and has a population of 2.5 million.

Functions

NCTCOG is designed by the Governor as the comprehensive regional planning and review agency for its area. NCTCOG is responsible for all phases of regional planning, including land use, transportation, health, criminal justice, and water and air quality. Additionally, NCTCOG is responsible for reviewing local applications for state and federal funding assistance for public development projects. Under this function, NCTCOG reviews projects totaling nearly one billion dollars each year.

Governance

The General Assembly is the Council's governing body. It is composed of one elected official from each member government and seventeen Regional Citizen Representatives. The General Assembly meets three times each year and is responsible for adopting the Council's annual budget, amending the Bylaws, and annually electing a President, Vice President, and Secretary-Treasurer. The General Assembly sets membership dues for participating governments. Local dues contributions are based on current population, and these funds are supplemented by Federal and State grants for specific studies.

The Regional Planning Commission, the planning arm of the COG, is composed of one representative from each county, and one from each city with a population in excess of 10,000 and seventeen Regional Citizen Representatives. The RPC meets three times each year, elects five Directors, and is concerned with all aspects of regional planning and development.

The Executive Board is the policy developing body of NCTCOG. It is responsible for general policies and programs, preparing business for the General Assembly and RPC, and preparing the annual work program and budget. The Board is composed of the President, Vice President, Secretary-Treasurer, and Immediate Past President of the General Assembly, the five RPC Directors, and two Regional Citizen Representatives.

Programs

Current programs include a massive multi-modal public transportation planning program for the region, the preparation of an open space plan, development of a regional solid waste disposal system, a cooperative purchasing program, a study of the feasibility of a regional detention and corrections facility, implementation of a regional manpower development and training program, plus many other joint and regional service programs.

The programs of the Council are performed through the use of its own staff, committees, and professional consultants. The Council presently has a full time staff of professional, general service, and administrative members. The Executive Director, appointed by the Executive Board, is responsible for general agency administration and overall supervision of the staff.

NCTCOG makes use of available professional talent in the region on its many committees. Hundreds of elected and appointed local officials, representatives of business, industry and education, and lay citizens have participated in COG committees.

To supplement staff work, the Council contracts with appropriate public and private agencies and firms to carry out specific projects. To fully implement and facilitate the PSC program described herein, the Council uses the subcontract approach. The subcontracts for instruction, counseling, and support services are fulfilled by the Dallas training unit of Skills Development, Inc.